PB90-114737

Pesticide Fact Sheet Number 206 Terbacil

(U.S.) Environmental Protection Agency, Washington, DC

Aug 89

U.S. Department of Commerce
National Technical Information Service
NTIS

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. PB90-114737

4. Title and Subtitle

EPA Pesticide Fact Sheets - Terbacil No. 206

5. Report Date

August 1989

6.

7. Author(s)

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8. Performing Organization Rept. No.

540/FS -89-065

9. Performing Organization Name and Address

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10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.

(C)

(G)

12. Sponsoring Organization Name and Address

Same as #9

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, science findings.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL INFORMATION SERVICE
SPRINGFIELD, VA. 22161

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Publicly Available	Unclassified	8
	20. Security Class (This Page) Unclassified	22. Price

540/FS-89-065

United States
Environmental Protection
Agency

Office of Pesticides and Toxic Substances
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Washington, DC 20460

EPA Pesticide Fact Sheet

Name of Chemical: TERBACIL

Reason for Issuance: REGISTRATION STANDARD (SRR)

Date Issued: August 1989

Fact Sheet Number: 206

1. DESCRIPTION OF CHEMICAL

Generic Name: 3-tert-butyl-5-chloro-6-methyluracil

Common Name: Terbacil

Trade and Other Names: 5-chloro-3-(1,1-dimethylethyl)-6-methyl-2,4(1H,3H)-pyrimidinedione, Sinbar^{R}, DuPont Herbicide 732, and Geonter.

EPA Shaughnessy Codes: 012701

Chemical Abstracts Service (CAS) Number: 5902-51-2

Year of Initial Registration: 1966

Pesticide Type: Herbicide

Chemical Family: Uracils

U.S. Producers: E.I. duPont de Nemours Company, Inc.

2. USE PATTERNS AND FORMULATIONS

Application sites: Terrestrial food crops.

Types and Methods of Application: Tractor mounted spray boom to soil surfaces and small emerged weeds. Aerial application.

Application Rates: 0.4 to 8.0 lb active ingredient per acre

Annual Usage: 290,000 - 610,000 pounds

Types of Formulation: Wettable powder

3. SCIENCE FINDINGS

Chemical Characteristics of the Technical Material

Physical State: Crystalline solid

Color: White

Odor: None

Molecular Weight and Formula: 216.7

Boiling Point: Terbacil is a solid at room temperature

Vapor Pressure: 4.7×10^{-7} mm Hg at 29.5°C

Density: 1.34

Solubility in various solvents: Water, xylene, and dimethylformamide

Toxicology Characteristics

-Acute Oral: 1082 mg/kg (rat) Toxicity Category III
-Acute Dermal: >5000 mg/kg (rabbit) Toxicity Category III
-Primary Dermal Irritation: No irritation demonstrated
-Primary Eye Irritation: slight eye irritation (conjunctiva)
-Dermal Sensitization: Not a dermal sensitizer
-Acute Inhalation: >4.4 mg/liter/4 hours (Toxicity Category III)
-Subchronic dermal (21-day): > 5000 mg/kg. No toxic signs.
-Subchronic Oral (90-day): No Observed Effect Level (NOEL) of 5 mg/kg/day.
-Chronic Oral dog (2-year): NOEL of 1.25 mg/kg/day.
-Oncogenicity: Data Gap.
-Teratogenicity (rat): Not teratogenic. Maternal NOEL was 62.5 mg/kg/day. Teratogenicity NOEL > 250 mg/kg/day.
-Teratogenicity (rabbit): Not teratogenic. Maternal and embryotoxicity NOEL was 200 mg/kg/day. Teratogenicity NOEL was 600 600 mg/kg/day (highest dose tested).
-Reproduction: No observed effects with a NOEL of 62.5 mg/kg/day (highest dose tested).
-Mutagenicity: Non-mutagenic in assays tested.
-Metabolism: Data Gap.

-Major route of exposure: Dermal

Physiological and Biochemical Characteristics

-Mechanism of Pesticidal Action: Stops photosynthesis
-Metabolism and Persistence in Plants and Animals: The available data are not adequate to assess the nature of terbacil in plants or in animals.

Environmental Characteristics

-Terbacil is stable to hydrolysis and photodegrades slowly in water.
-It has a potential to contaminate ground water particularly in areas with sandy soil surfaces.
-It leaches slower in fine textured soils and also in soils having higher organic contents.
-It does not accumulate to significant levels in bluegill sunfish.
-Residues resulting from multiple applications of terbacil persisted for 2 years following the final application.
-Preliminary data indicate that terbacil is extremely persistent with half-lives of 520 days aerobically and 178 days anaerobically.

Ecological Characteristics

-Avian acute toxicity:
>2250 mg/kg (Quail). Practically Non-toxic.
-Avian dietary toxicity:
>5000 ppm (Mallard duck,). Practically Non-toxic.
-Freshwater fish acute toxicity:
102.9 ppm (Bluegill sunfish) Practically Non toxic.
46.2 ppm (Rainbow trout) Slightly Toxic
-Marine fish acute toxicity: Data Gap
-Freshwater invertebrate toxicity:
65 ppm (Daphnia). Slightly toxic.
-Marine invertebrate toxicity:
>4.9 ppm (Oyster). Moderately toxic
49 ppm (Shrimp). Slightly toxic

TOLERANCE ASSESSMENT

-Tolerances have been established for residues of Terbacil in a variety of raw agricultural commodities (Refer to 40 CFR 180.209 for listing of tolerances). Terbacil's tolerances have been reassessed using the Tolerance Assessment System (TAS). The TAS chronic exposure analysis estimates average daily exposure for the overall U.S. population and each of the 22 populations subgroups and compares these estimates to the acceptable daily intake (ADI) calculated for terbacil.

The Theoretical Maximum Residue Contribution (TMRC) for the overall U.S. population is estimated to be 0.001594 mg/kg/day, which occupies approximately 12% of the ADI. The two most highly exposed subgroups are non-nursing infants, less than 1 year old (TMRC= 0.008122 mg/kg/day or 62% of the ADI), and children , 1- 6 years of age (TMRC= 0.004361 mg/kg/day or 34% of the ADI).

4. Summary of Regulatory Positions

This review of terbacil is the second intensive evaluation of the compound. In its original Registration Standard, issued in 1982, the Agency summarized the available data supporting the registration of terbacil and concluded that additional data were needed to fully evaluate the pesticide.

The Agency has since received and reviewed the data and has revised its scientific and regulatory conclusions relative to these data.

o Terbacil will not be placed in Special Review at this time.
o The Agency will impose a ground water contamination advisory statement to reduce point source contamination.
o The Agency is requiring the following testing on all terbacil end-use products: acute oral, acute dermal, primary eye, primary skin, dermal sensitization, and acute inhalation if appropriate.
o The Agency will not establish a reentry interval for terbacil beyond the minimum reentry interval (sprays have dried, dusts have settled and vapors have dispersed).
o The Agency will require updated worker safety and protective equipment statements for end-use products containing terbacil.
o The Agency is requiring a rotational crop statement on all terbacil labels which may involve rotation to crops other than those currently registered (refer to section IV.D for specific wording). In addition residue data are required for representative crops from any crop group which could be rotated from alfalfa, sainfoin, and mint.
o Existing Tolerances for Terbacil per se should be amended to include metabolites A,B, and C, as specified in 40 CFR 180.209 (b).
o The Agency will revoke tolerances associated with the commodities sainfoin (hay), sainfoin (forage), and pears.
o The Agency will revise the tolerance for residues in or on peaches to 0.2 ppm for combined residues of terbacil and its metabolites.

o The Agency will impose a label restrictions against the feeding and grazing of sugarcane forage and spent hay to livestock or require the development and submission of data in support of tolerances for residues in or on sugarcane forage and spent hay.
o The Agency has determined that grasses grown for seed is a food use. Therefore, data depicting residues of terbacil in or on members of the grass forage, fodder and hay group are required.
o The Agency will not propose group tolerances for terbacil.
o The Agency will not grant any significant new food or feed uses for terbacil until the required residue chemistry and toxicology studies have been submitted and reviewed.
o The Agency has identified certain data that will receive priority review when submitted;

Section 158.340 Toxicology
83-1 Chronic Oral Feeding (Rat)
83-2 Oncogenicity (Rat and Mouse)

Section 158.290 Environmental Fate
162-1 Aerobic Soil Metabolism
162-2 Anaerobic Soil Metabolism
163-1 Leaching Adsorption/Desorption
164-5 Soil, Long Term (field)

Section 158.490 Wildlife and Aquatic Organisms
72-3 Estuarine and Marine Testing (Fish)
122- Tier I Nontarget Area Phytotoxicity

Section 158.240 Residue Chemistry
171-4 Metabolism in Plants & Livestock

5. Required Unique Labeling

A. Groundwater Advisory Statements
B. Environmental Hazards Statement
D. Reentry Statement
E. Feeding and/or Grazing Restrictions
F. Rotational Crop Statement

6. Summary of Major Data Gaps

	Timeframe Ranges
Toxicology	12-48 Months
Environmental Fate/Exposure	12-48 Months
Ecological Effects	24 Months
Residue Chemistry	24-48 Months
Product Chemistry	12-24 Months

7. CONTACT PERSONS AT EPA

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DISCLAIMER: The information in this Pesticide Fact Sheet is a summary only and is not to be used to satisfy data requirements for pesticide registration and reregistration. The complete Registration Standard for the pesticide may be obtained from the National Technical Information Service. Contact the Review Manager listed above for further information.